

REMARKS

The Examiner was of the view that the specification did not support the phrase of the fingertip contour region 13 being "cup-shaped." Accordingly, this phrase is removed from all claims. Applicants are of the view, and the figures clearly show, that the region 13 is "a fingertip contour area having a rounded, upper region configured to receive thereon a rounded tip portion of a fingertip." The figures also show it is positioned below a fingernail of a finger placed thereon.

In addition, Figures 1A-1C clearly show that the rounded portion 113 is positioned to have the rounded, upper region 113 below a fingernail of a finger placed thereon. As clearly shown in Figure 1C, the fingernail is positioned above the rounded portion 113 so that the length of the fingernail does not affect the positioning of the finger. There is therefore complete disclosure in the figures and in the specification to the claims as now presented.

The present invention is therefore distinctly different from the prior art cited by the Examiner of Amano, a Japanese publication no. 4-88586.

In Amano, the flange 13 is a vertical flange which will be impacted by the fingernail.

In Amano, the length of the fingernail will be determinative of the position of the finger. If the fingernail is extremely short, and does not extend beyond the tip of the finger, then the finger will be positioned very forward on the prism face 11a. On the other hand, if the fingernail has grown on the individual, or they have not trimmed their fingernails for a period of time, or, in some instances, if the individual has long manicured fingernails or false fingernails, the flange 13 will be pushed to a different position, thus changing substantially the alignment of the finger 12 on the sensor face 11a.

Of some importance, the fingernail may have a different length during the training stage than during the sensing stage that may be months or years later. Thus, for a single user, if the fingernail is a first length while the device is being trained to receive input data of the fingerprint shape, and a different shape or length when the data is being sensed, then the positioning of the fingerprint will be substantially different. Indeed, the differences may be so substantial that the device is turned on and begins to operate before the fingerprint portion of the

finger is over the sensor, as may occur with long fingernails. And, as may occur with short fingernails, the fingerprint portion may be well past the sensing location.

The present invention, as shown in Figure 1C, avoids these issues by having a rounded, upper region which receives a rounded tip portion of the fingerprint of the fingertip.

It was the Examiner's view that the flange 13, since it is rounded, receives a rounded tip portion of a finger thereon. Applicants strongly disagree.

The flange 13 is a vertical flange which is curved in a vertical plane. It is curved with the intent of receiving the fingernail itself and an extended end of the finger. On the other hand, the present invention has an upwardly facing rounded region, as is clearly shown in Figure 1C. This is positioned and configured to receive a portion of the finger itself so that a portion of the finger is in contact with the rounded portion. The present invention ensures that the finger will be properly positioned on the sensor during the sensing operation.

Claim 1 and claims dependent thereon are therefore believed allowable.

Claim 8 has been amended, and new claim 25 is added herein. Claim 8 contains some of the features previously found in claim 11, with additional features. Figure 7 shows the capturing of a fingerprint image and the sensing of the captured image to ensure the quality. As described on page 10, lines 10-20, the present invention first captures a fingerprint image. Then, the quality of the image is evaluated to determine whether the image quality is acceptable. This feature is believed clearly patentable over the prior art of record. The Examiner cited to a combination of references that included Thomopoulos et al., U.S. Patent No. 5,978,495.

Thomopoulos is distinctly different from the present invention. As is clear in Thomopolous, his teaching is to condition the finger and provide audio and visual feedback on finger position. The user is able to adjust the finger position on the scanner. He does not teach examining the quality of an image and providing feedback to the user know whether the image quality was sufficient.

Most importantly, Thomopolous teaches away from the audio and visual feedback being an image quality analysis provided to the user. He specifically states, "a fingerprint image is captured only when the finger is correctly position,...". See column 5, lines 57-62.

Thomopolous teaches that the image is not made until the finger is correctly positioned. He clearly states that the fingerprint image is not captured until after the audio and visual feedback have been provided to the person. Therefore, there is no teaching in Thomopolous regarding the presence of an indicator which senses the image quality and provides an evaluation of the image quality to the user. Indeed, it is clear that Thomopolous teaches away from this feature of the present invention, and thus cannot render it obvious.


Claims 8 and 25 specifically state that there is an image quality indicator configured to obtain an image of the fingerprint, evaluate the quality of the image, and signal whether the image is acceptable. The features of this are taught on page 10, as previously suggested and, as now clarified in claims 8 and 25, are clearly patentable over the prior art of record.

The Director is authorized to charge any additional fees due by way of this Amendment, or credit any overpayment, to our Deposit Account No. 19-1090.

All of the claims remaining in the application are now clearly allowable. Favorable consideration and a Notice of Allowance are earnestly solicited.

Respectfully submitted,

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